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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HIRIYANNA, KELAGINAMANE T	
ART UNIT	PAPER NUMBER
1633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,326	GRONTHOS ET AL.	
	Examiner	Art Unit	
	KELAGINAMANE HIRIYANNA	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 April 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *172,175-181,183-186 and 191-194* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *172,175-181,183-186 and 191-194* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/01/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on *04/01/2010* has been entered.

Applicant's response filed on *04/01/2010* in response to office action mailed on 09/29/2009 has been acknowledged.

Claims 172,175-181, 183-186, and 191-193 are amended.

Claims 131-171, 173,174, and182 were previously canceled.

Claims 187-190 are canceled.

Claims 172,175-181, 183-186, and 191-194 *are pending and are examined in this office action. Applicants are required to follow Amendment Practice under revised 37 CFR §1.121. The fax phone numbers for the organization where this application or proceeding is assigned is 571-273-8300.*

Withdrawn: Claims 172, 175-181 and 183-191-194 rejection under 103(c) as being unpatentable over Chopp et al., (2002, The Lancet Neurology 1:92-100; art of record) in view of Jones et al (2002, Arthritis and Rheumatism 46:3349-3360; art of record), Bianco et al (2001, Stem cells 19:180-192; art of record), Dennis et al (2002, Cells Tissues Organs 170:73-82; art of record) for the reason of record as set forth in the office action mailed on 109/29/2009 is withdrawn in view of Applicants amendments to claims and in view of 35 USC 10 2 and the revised 35 USC 103 rejections below.

Withdrawn: Claims 172,175-181, 183-186, and 191-194 rejection under 35 U.S.C. 112, first paragraph, for the reason of record as set forth in the office action mailed on 109/29/2009 is withdrawn in view of Applicants amendments and arguments.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 172, 175, 176, 180, 181,183 and 192 and dependent claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 172 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim. The claim recitation on lines 4-7 "a population of cells enriched for MPCs that express the marker stro-1 or cultured or expanded cells derived thereform" makes the claim omnibus. Is it MPCs that are "cultured or expanded" or is it the MPCs expressing the marker stro-1 that are "cultured or expanded"? Applicant should clarify the same and is required to amend the claims to be non-omnibus.

Claim 175 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out and distinctly claim the subject matter which applicant regards as the invention. The claim recitation on lines 4 "0.01% MPCs capable of forming clonogenic colony" implies that the broader claim or the base claim (claim 172) encompasses compositions in which MPCs are incapable of forming clonogenic colonies. Is it so? Applicant should clarify and amend the claim appropriately

Claim 176 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out and distinctly claim the subject matter which applicant regards as the invention. The claim recitation on lines 4 "0.01% capable of forming clonogenic colony" implies that the broader claim or the base claim (claim 172) encompasses compositions in which MPCs are incapable of forming clonogenic colonies. Is it so? Applicant should clarify and amend the claim appropriately.

Claims 180, 181,183 and 192 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out and distinctly claim the subject matter which applicant regards as the invention. The claim recitation of the cells as expressing "one or more markers" "additional markers" "but not limited to" ...etc., imply that base claim is presenting the markers in broader context. However the Applicant has not described the broader genera of cells of the broader claims or base claims, without said markers. Applicant should clarify the same and amend the claim appropriately.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 172,175, 176, 184 and 193 are rejected under 102(a) as being anticipated by Al-Khaldi et al., (2003, Ann. Thoraic. Surg. 75:204-209; art of record).

The above The claims are drawn to a method of inducing formation or repair of blood vessels comprising contacting a tissue in need of blood vessel repair with a population of cells enriched for mesenchymal precursor cells (MPCs) that express the marker STRO-1 or cultured or expanded cells derived there form so as to thereby generate new blood vessels or repairing blood vessels. In further limitations the cells comprises at least 0.01% cells capable of forming a clonogenic colony, express STRO-1 marker, are mesenchymal precursor cells (MPCs) that comprise additional markers 3G5, MUC18/CD46 and/or alpha smooth muscle actin and/or negative for certain other markers, derived from several different tissue sources, isolated from different niches from a tissue and preferably from perivascular niche and enriched to different extent with respect to cells possessing said markers.

Al-khaldi teaches a method of promoting or inducing angiogenesis using autologous marrow stromal cells (mesenchymal progenitor cells) in a hind limb ischemia of a rat (entire article; abstract; p.204). Al-khaldi teaches systemic administration of $5X10^6$ said cells into anteromedial muscle compartment by injection and observed increased angiogenesis and blood flow (abstract; p.205, col.1-2 bridging p.206; Fig.2-6). Al-Khaldi concludes that MSC or/MPCs could be used as therapy to promote angiogenesis as further evidenced by his demonstration using the rat model (p.208-209). Unless reasons to believe other wise Al-Khaldi's MPCs did express Stro-1 and other markers of MPCs claimed. Thus the rejected claims are within the scope of the Al-Khaldi's disclosure.

Claims 172,175, 176, 184, 191, and 193 are rejected under 102(b) as being anticipated by Dennis et al (2002, Cells Tissues Organs 170:73-82; art of record).

The above The claims are drawn to a method of inducing formation or repair of blood vessels comprising contacting a tissue in need of blood vessel repair with a population of cells enriched for mesenchymal precursor cells (MPCs) that express the marker STRO-1 or cultured or expanded cells derived there form so as to thereby generate new blood vessels or repairing blood vessels. In further limitations the cells comprises at least 0.01% cells capable of forming a clonogenic colony, express STRO-1 marker, are mesenchymal precursor cells (MPCs) that comprise additional markers 3G5, MUC18/CD46 and/or alpha smooth muscle actin and/or negative for certain other markers, derived from several different tissue sources, isolated from different niches from a tissue and preferably from perivascular niche and enriched to different extent with respect to cells possessing said markers.

Dennis teaches a method of repairing vascular tissue with hematopioesis supportive stromal cells with a vascular smooth muscle-like phenotype and bearing Stro-1 marker (entire article; abstract; p.74-75; p.81, col.2). Dennis further teaches that human bone marrow derived STRO1+ cells differentiate into multiple phenotypes including vascular smooth muscle cells (Abstract, p.74). Dennis further teaches expression of markers like CD10 and CD13, cell adhesion molecules, alpha smooth

muscle actin, integrins etc (p.81, col.1). Dennis still further teaches using the above cells for the repair of various mesenchymal tissues. Unless reasons to believe otherwise these cell induce vascular tissues in the tissues repaired. Thus the rejected claims are within the scope of Dennis's disclosure.

Claims 172,175, 176, 184 and 193 are rejected under 102(b) as being anticipated by Reyes et al (2002, Clin. Invest. 109:337-346).

The above The claims are drawn to a method of inducing formation or repair of blood vessels comprising contacting a tissue in need of blood vessel repair with a population of cells enriched for mesenchymal precursor cells (MPCs) that express the marker STRO-1 or cultured or expanded cells derived there form so as to thereby generate new blood vessels or repairing blood vessels. In further limitations the cells comprises at least 0.01% cells capable of forming a clonogenic colony, express STRO-1 marker, are mesenchymal precursor cells (MPCs) that comprise additional markers 3G5, MUC18/CD46 and/or alpha smooth muscle actin and/or negative for certain other markers, derived from several different tissue sources, isolated from different niches from a tissue and preferably from perivascular niche and enriched to different extent with respect to cells possessing said markers.

Reyes teaches the potential therapeutic use for inducing neo-angiogenesis using multipotent adult progenitor cells (MAPC) that co-purifies with mesenchymal stem cell from postnatal human bone marrow. These MAPCs are progenitor cells (MPC) for angioblasts that subsequently differentiate into cells that express endothelial markers, and may be important source for cellular angiogenic therapies (entire article, abstract, p.339, fig.1; p.345). Unless reasons to believe other wise Reyes's MSCs or MPCs did express Stro-1 and other markers of MPCs claimed. Thus the rejected claims are within the scope of the Reyes's disclosure.

Claims 172,175, 176, 184, 191, and 193-194 are rejected under 102(b) as being anticipated by Simmons et al (WO 01/04268 A1).

The above The claims are drawn to a method of inducing formation or repair of blood vessels comprising contacting a tissue in need of blood vessel repair with a population of cells enriched for mesenchymal precursor cells (MPCs) that express the marker STRO-1 or cultured or expanded cells derived there form so as to thereby generate new blood vessels or repairing blood vessels. In further limitations the cells comprises at least 0.01% cells capable of forming a clonogenic colony, express STRO-1 marker, are mesenchymal precursor cells (MPCs) that comprise additional markers 3G5, MUC18/CD46 and/or alpha smooth muscle actin and/or negative for certain other markers, derived from several different tissue sources, isolated from different niches from a tissue and preferably from perivascular niche and enriched to different extent with respect to cells possessing said markers.

WO 01/04268 A1 teaches MPCs with all the claimed markers of the instant invention and further claims the use of these MPCs for cell therapies of various tissues (entire article; abstract). Unless reason to believe otherwise these cells induced angiogenesis in the target tissues. Thus the rejected claims are within the scope of the WO 01/04268 A1's disclosure.

Claims 172,175, 176, 184, 191, and 193-194 are rejected under 102(b) as being anticipated by Kocher et al., (2001, Nature Medicine 7:430-436).

The above The claims are drawn to a method of inducing formation or repair of blood vessels comprising contacting a tissue in need of blood vessel repair with a population of cells enriched for mesenchymal precursor cells (MPCs) that express the marker STRO-1 or cultured or expanded cells derived there form so as to thereby generate new blood vessels or repairing blood vessels. In further limitations the cells comprises at least 0.01% cells capable of forming a clonogenic colony, express STRO-1 marker, are mesenchymal precursor cells (MPCs) that comprise additional markers 3G5, MUC18/CD46 and/or alpha smooth muscle actin and/or negative for certain other markers, derived from several different tissue sources, isolated from different niches from a tissue and preferably from perivascular niche and enriched to different extent with respect to cells possessing said markers.

Kocher teaches a method of inducing angiogenesis or neovascularization of ischemic myocardium by human bone marrow derived angioblasts (MPCs) that act as endothelial precursors and improves cardiac function. Unless reasons to believe other wise Kochers MPCs did express Stro-1 and other markers of MPCs claimed. Thus the rejected claims are within the scope of the Kochers's disclosure.

Claims 172,175, 176, 184 and 193 are rejected under 102(b) as being anticipated by Chopp et al., (2002, The Lancet Neurology 1:92-100; art of record).

The above The claims are drawn to a method of inducing formation or repair of blood vessels comprising contacting a tissue in need of blood vessel repair with a population of cells enriched for mesenchymal precursor cells (MPCs) that express the marker STRO-1 or cultured or expanded cells derived there form so as to thereby generate new blood vessels or repairing blood vessels. In further limitations the cells comprises at least 0.01% cells capable of forming a clonogenic colony, express STRO-1 marker, are mesenchymal precursor cells (MPCs) that comprise additional markers 3G5, MUC18/CD46 and/or alpha smooth muscle actin and/or negative for certain other markers, derived from several different tissue sources, isolated from different niches from a tissue and preferably from perivascular niche and enriched to different extent with respect to cells possessing said markers.

Chopp teaches a method of promoting angiogenesis during a treatment of neural injury with bone marrow stromal cell including mesenchymal stem cells (MSC) following in vivo and systemic administration of said cell in rats (entire article; abstract; p.93, col.1 2nd paragraph bridging col.2). Chopp further teaches direct implantation, injection as well as systemic administration of said cells including intravenous delivery and effect the recovery from pathological process by regenerative angiognesis, vasculogenesis (Abstract; p.96-98; Fig.3). Unless reasons to believe other wise Chopp's MSCs or MPCs did express Stro-1 and other markers of MPCs claimed. Thus the rejected claims are within the scope of the Chopp's disclosure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 172,175-181, 183-186, and 191-194 are rejected under 103(c) as being unpatentable over Reyes et al (2002, Clin. Invest. 109:337-346) in view of Jones et al (2002, Arthritis and Rheumatism 46:3349-3360; art of record), Bianco et al (2001, Stem cells 19:180-192; art of record), Dennis et al (2002, Cells Tissues Organs 170:73-82; art of record), Reyes et al (2002, Clinical. Invest. 109:337-346),Simmons et al (WO 01/04268 A1) and Kocher et al., (2001, Nature Medicine 7:430-436).

The above The claims are drawn to a method of inducing formation or repair of blood vessels comprising contacting a tissue in need of blood vessel repair with a population of cells enriched for mesenchymal precursor cells (MPCs) that express the marker STRO-1 or cultured or expanded cells derived there form so as to thereby generate new blood vessels or repairing blood vessels. In further limitations the cells comprises at least 0.01% cells capable of forming a clonogenic colony, express STRO-1 marker, are mesenchymal precursor cells (MPCs) that comprise additional markers 3G5, MUC18/CD46 and/or alpha smooth muscle actin and/or negative for certain other markers, derived from several different tissue sources, isolated from different niches from a tissue and preferably from perivascular niche and enriched to different extent with respect to cells possessing said markers.

Regarding the claim limitations of vasculogenesis or neovascularisation using MPCs Reyes teaches the potential therapeutic use for inducing neo-angiogenesis using multipotent adult progenitor cells (MAPC) that co-purifies with mesenchymal stem cell from postnatal human bone marrow. These MAPCs are progenitor cells (MPC) for angioblasts that subsequently differentiate into cells that express the endothelial markers, and may be important source for cellular angiogenic therapies (entire article, abstract, p.339, fig.1; p.345). Unless reasons to believe other wise Reyes's MSCs or

MPCs did express Stro-1 and other markers of MPCs claimed. Reyes however does not teach all the claimed markers as present on said cells and does not teach inducing vascularization in mycocardium.

Jones teaches regarding the limitations of various markers on the MSCs (MPCs) in claims 180, 181 and 183. In addition to Stro-1+ (Abstract; p3350, col.1, 2nd paragraph) cells further possess various markers including CD29, CD10, CD13 and were negative for CD34. Jones further teaches regarding expanding these cells in culture and clonal assays (entire article; p.3350, col.1, 3rd paragraph; col.2 2nd paragraph).

Bianco teaches CFU-F fraction derived bone marrow cells (which are enriched in Stro1+ cells) and their potential to differentiate into vascular cells (entire article abstract; p.181-184). Bianco further teaches localization and isolation of Stro-1 bright cells fraction (p.182, co.1-2 bridging p.183-184) and teach that isolated stro-1 bright cells exhibit several endothelial markers (p.185, col.2, 2nd paragraph).

Dennis teaches a method of repairing vascular tissue with hematopioesis supportive stromal cells with a vascular smooth muscle-like phenotype and bearing Stro-1 marker (entire article; abstract; p.74-75; p.81, col.2). Dennis further teaches that human bone marrow derived STRO1+ cells differentiate into multiple phenotypes including vascular smooth muscle cells (Abstract, p.74). Dennis further teaches expression of markers like CD10 and CD13, cell adhesion molecules, alpha smooth muscle actin, integrins etc (p.81, col.1).

WO 01/04268 A1 teaches MPCs with all the claimed markers of the instant invention and further claims the use of these MPCs for cell therapies of various tissues (entire article; abstract). Unless reason to believe otherwise these cells induced angiogenesis in target tissues.

Kocher teaches a method of inducing angiogenesis or neovascularization of ischemic myocardium by human bone marrow derived angioblasts (MPCs) that act as endothelial precursors and improves cardiac function. Unless reasons to believe other wise Kochers MPCs did express Stro-1 and other markers of MPCs claimed.

Regarding claim limitations of using said MPCs or MSCs at various level of enrichment in claims 175-179 and 191 It is well settled that routine optimization is not patentable, even if it results in significant improvements over the prior art. Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. However, even though applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. Further regarding various markers claimed for the MPCs/MSCs and their niche in a tissue (such as bone marrow peri-vascular niche etc) in claims 183-186 Dennis, Reyes, Bianco, Jones and WO 01/04268 and Kocher teach all the further claim limitations, and still further the Applicant should note Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not. Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product.

Thus it would have been obvious for one of ordinary skill in the art to incorporate into the method of promoting angiogenesis in an organ or tissue by administering MAPCs (MPCs) as taught by Reyes a with step of confirming the identity of MSCs and MPCs as Stro1+ or stro1+bright cells and enriching them as taught by Jones, Simmons, Dennis and/or Bianco to administer an effective amounts of Stro1+bright cells enriched MPCs to induce neovascularization in a tissue or the myocardium as Kocher and Dennis teaches that they can differentiate into vascular smooth muscle cell and

endothelial cell phenotype and induce vascularization.. One of ordinary skill in the art would have been motivated to use Stro-1+ cell enriched MPCs in order to induce angiogenesis or neovascualrization as it would promotes healing of the affected organ by relieving from ischemia by increasing blood circulation. One of ordinary skill in the art would have reasonable expectation of success in making and using enriched Stro 1+ or stro-1+ bright MPCs for inducing neovascualrization because the art teaches that it is routine to transplant MPCs to a tissue and obtain neovascularization, it is routine to make MPCs enriched in Stro1+ or stro-1+ bright cells and art further teaches regarding their potential to differentiate into vascular cells. Thus, the claimed invention was prima facie obvious.

Response to Applicants Arguments in the Response of *04/01/2010*:

The Applicants amends to broaden the claims and still argues that the instant invention is not obvious because Chopp reference which teaches neovascularization with bone marrow derived MPCs does not teach comprising or enriched with Stro1+ cells and the Applicant argues that Jones reference that teaches Stro1+ cell enrichment does not teach neovascularization.

The Applicants arguments are however found not persuasive. The Applicant first should note that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In the newly included prior art references of Reyes, Dennis, Jones, Simmons, Bianco and Kocher clearly clearly teaches that CFU-F fraction of BM cells clearly are enriched in cell comprising Stro 1+ cells, Further teach that these cells are capable of inducing vascularization in vivo and/or progenitors of vascular tissue cells that are capable o repairing vascular tissue and myocardium. Further the supporting art of Jones and Simmons clearly teach enrichment of Stro 1+cells in BM

derived MPCs. Thus the above references make the invention obvious when combined in the light further knowledge available in the prior art. Hence, the invention as claimed was obvious to one of skill in the art at the time of instant invention.

Conclusion

No claim allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Kelaginamane Hiriyanna Ph.D.,* whose telephone number is **(571) 272-3307**. The examiner can normally be reached Monday through Thursday from 9 AM-7PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Joseph Woitach Ph.D.,* may be reached at **(571) 272-0739.** The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). When calling please have your application serial number or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. For all other customer support, please call the USPTO call center (UCC) at (800) 786-9199.

/Robert M Kelly/
Primary Examiner, Art Unit 1633